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*Published in:*  
International Journal of Manpower

*DOI:*  
[10.1108/IJM-09-2018-0300](https://doi.org/10.1108/IJM-09-2018-0300)

**IMPORTANT NOTE: You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.**

*Document Version*  
Publisher's PDF, also known as Version of record

*Publication date:*  
2019

[Link to publication in University of Groningen/UMCG research database](#)

*Citation for published version (APA):*  
van Dalen, H. P., & Henkens, K. (2019). Do stereotypes about older workers change? A panel study on changing attitudes of managers. *International Journal of Manpower*. <https://doi.org/10.1108/IJM-09-2018-0300>

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# Do stereotypes about older workers change? A panel study on changing attitudes of managers

Stereotypes  
about older  
workers

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Received 19 September 2018

Revised 4 April 2019

13 June 2019

Accepted 5 October 2019

## Abstract

**Purpose** – The purpose of this paper is to see whether attitudes toward older workers by managers change over time and what might explain development over time.

**Design/methodology/approach** – A unique panel study of Dutch managers is used to track the development of their attitudes toward older workers over time (2010–2013) by focusing on a set of qualities of older workers aged 50 and older. A conditional change model is used to explain the variation in changes by focusing on characteristics of the manager (age, education, gender, tenure and contact with older workers) and of the firm (composition staff, type of work and sector, size).

**Findings** – Managers have significantly adjusted their views on the so-called “soft skills” of older workers, like reliability and loyalty. Attitudes toward “hard skills” – like physical stamina, new tech skills and willingness to train – have not changed. Important drivers behind these changes are the age of the manager – the older the manager, the more likely a positive change in attitude toward older workers can be observed – and the change in the quality of contact with older workers. A deterioration of the managers’ relationship with older workers tends to correspond with a decline in their assessment of soft and hard skills.

**Social implications** – Attitudes are not very susceptible to change but this study shows that a significant change can be expected simply from the fact that managers age: older managers tend to have a more positive assessment of the hard and soft skills of older workers than young managers.

**Originality/value** – This paper offers novel insights into the question whether stereotypes of managers change over time.

**Keywords** Employee productivity, Stereotypes, Attitudes, Older workers, Employers

**Paper type** Research paper

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The authors declare no conflict of interest. This research was carried out with the support of a grant of the Netherlands Institute for Advanced Studies (NIAS) and the NWO VICI Grant. In this paper, the authors make use of the Longitudinal Internet Studies for the Social Sciences (LISS) panel administered by Centerdata (Tilburg University, The Netherlands).



International Journal of Manpower  
Emerald Publishing Limited  
0143-7720  
DOI 10.1108/IJM-09-2018-0300

## Introduction

Stereotypes and ageist attitudes are a serious impediment to the prospects of older workers seeking employment in today's labor markets: perceived discrimination based on age is one of the most widespread forms of discrimination in Europe (Eurobarometer, 2015). Of an extensive list of possible character traits that a candidate can possess, being "old" (55 years and older) is what puts a candidate most strongly at a disadvantage according to European citizens. Of course, actual discrimination is hard to discern or detect – the economic literature on discrimination shows that in theory one can view employer decisions as either based on dislikes and "tastes" as Becker (1957) describes, or based on statistical discrimination (Phelps, 1972; Arrow, 1973). The latter concept is a form of discrimination where employers use the group identity in their assessment of productivity of individuals (belonging to a minority group) because employee's productivity is imperfectly observed[1]. In actual practice, it is difficult to detect whether stereotypical views toward older workers are accurate or not, as these may be a mix of dislikes and imperfect observation. What makes the case of discrimination of older workers even harder is that the signals about the productive value of older workers are bound to be imperfect, as human capital investments are expected to generate a greater dispersion over the life course in unobserved investments among older workers (Heckman *et al.*, 2006; Neumark *et al.*, 2019).

The central issue this paper focuses on is whether employers' stereotypical views regarding older workers change, and if so, what structural factors explain these changes. The scholarly literature on stereotypes held by employers shows that their human resource decisions on older workers are firmly affected by the stereotypes they hold about them (Avolio and Barrett, 1987; Chiu *et al.*, 2001; Earl *et al.*, 2017; Van Dalen and Henkens, 2018). The fact that employers in aging societies have been lukewarm until now in hiring older workers or investing in their human capital may also be seen as a sign of an employer's distrust in the capacities of the older worker (Munnell and Sass, 2009; Van Dalen *et al.*, 2015; Oude Mulders *et al.*, 2017, 2018). There is substantial evidence that most of these stereotypes are not well founded: chronological age has not been found to be a valid and robust predictor of performance (Bal *et al.*, 2011; Ng and Feldman, 2012; Posthuma and Campion, 2009; Waldman and Avolio, 1986). Policy makers have stressed the need for such changes to occur at the level of employers in order to alleviate the precarious state of older unemployed who have difficulty regaining employment in the face of negative stereotypes and are forced to a state of long-term unemployment (cf. OECD, 2006). Indeed, the concept of active aging that is embraced by policy makers is based on challenging negative stereotypes involving older workers, or as the International Council on Active Aging formulates one of its core principles: "Ageism and negative stereotypes of ageing impede an inclusive society. To maximize the dividends of population ageing, we need to embrace the realities of ageing today and leave old ways of thinking behind."

When stereotypes play such a large role in today's labor market, an important question to pose would be: to what extent are age-related stereotypes susceptible to change? And if so, what are the driving forces behind such changes? These questions are the focal point of this paper. We examine the age-related stereotypes of managers over a three-year period and look at whether employers have changed their perceptions of the productive skills of older workers over time. As Harris *et al.* (2017) make clear from their review on ageism, most studies on stereotypes are of a cross-sectional nature and longitudinal research is called for. This study focuses on understanding whether stereotypes change by using panel data collected among managers. The need for understanding this process has become more important over time as the landscape of retirement is changing rapidly (see Henkens *et al.*, 2018). Organizations up and till the 1990s exhibited a culture of early exit of older workers, but at the start of the twenty-first century this trend toward early retirement was reversed in quite a number of countries and employers are now encountering employees who retire at a significantly later age than before (Blundell *et al.*, 2016). This transition phase is an excellent

opportunity to monitor how the perceptions and attitudes that employers have of older workers might change. In this paper, we analyze unique two-wave panel data on attitudes among Dutch managers with respect to older workers over the period 2010–2013. By measuring attitudes of individual managers at two points in time and measuring organizational characteristics in which the manager works, we are not only able to see whether changes of perceptions among managers occur, but also discern possible drivers of change at the level of the manager and the organization. In this paper, we first establish whether there are significant changes in perceived skills of older workers among managers. The second part focuses on two specific drivers of change: the age of the manager and the quality of interaction which a manager has with older workers in his or her organization.

### Attitudes about older workers

People's perceptions enable them to process and organize information as effectively as possible. Hilton and Von Hippel (1996) describe stereotypes as: "Beliefs about the characteristics, attributes, and behaviors of members of certain groups [...] and beliefs about how and why these attributes go together" (p. 240). This definition refers to groups of people. Individuals within a group tend to overestimate the similarities and underestimate the differences between themselves and members of the same group (Linville *et al.*, 1989; Verkuyten and Nekuee, 1999). Processes of stereotyping are described from different social psychological perspectives. The cognitive functional approach postulates that people's capacity to take in and digest information is limited. In mental terms, activating categorical and stereotypical information is easier than forming opinions about others on the basis of one's own impressions. Social identity theory posits that people compare themselves with other individuals or groups in an effort to distinguish themselves favorably from those groups. These stereotypical perceptions may be the result of socialization processes and may also serve as an ego protection function. People tend to be more inclined to attribute positive characteristics to members of their own group (in-group bias) and more negative characteristics to members of other groups (out-group bias) (Lalonde and Gardner, 1989; Tajfel and Turner, 1979). It is well established in the academic literature (see Harris *et al.*, 2017; Rupp *et al.*, 2006; Zacher *et al.*, 2019) that stereotypical views on older workers exist. Employers and employees have perceptions of how certain age groups function within organizations and what their comparative advantages are. The current body of research has shown that older workers are viewed as having both positive and negative attributes compared to younger age groups. Positive characteristics attributed to older employees include experience, loyalty to the organization, reliability and interpersonal skills, whereas skills such as the acceptance of and the ability to use new technologies and the adjustment to organizational changes are attributed primarily to younger workforce members (Van Dalen *et al.*, 2010). What is not empirically well established is whether age stereotypes among individual employers change over time and, if so, what triggers these changes. There is an extensive (experimental) social psychological literature on stereotype change related to this type of work (cf. Weber and Crocker, 1983; Richards and Hewstone, 2001; Koenig and Eagly, 2014). The comparative advantage of this particular research current is that by using an experimental setup in which researchers manipulate, e.g., information or roles, they can assess why stereotypes sometimes change. However, the evidence so far shows that these stereotypes often remain fixed. Experimental designs often have limited ecological validity, and individuals generally are not followed long enough to register changes in stereotypes.

The current study is also linked to the extensive literature using cross-sectional survey designs showing the existing stereotypes toward older workers (Principi *et al.*, 2015). These studies generally have a higher ecological validity, but lack a dynamic perspective

(Turek and Perek-Bialas, 2013). In short, we bridge the literature by focusing on real managers and their changing stereotypical views about older workers in real organizations. We reflect on a number of possibilities that lead to managers changing their general perception of older workers. An obvious factor to consider in explaining these perceptions is the role of the age of managers. In most studies on age stereotyping one can detect a role of age but these effects are often limited to a cross-sectional setup. The effect of age on a supervisor's assessment is a priori not clear. For instance, Hassell and Perrewe (1995) found that older supervisors have more negative views of older workers than younger supervisors. They argue that "because supervisors may be 'older' themselves, they psychologically may deny membership in that category to protect their work identity and status. Older supervisors may perceive themselves to be contributing and valued members of the organization, thus, they may not want to be viewed as an 'older' employee." (p. 466). In other words, managers distance themselves from the out-group of older employees and age does not seem to cause a positive change in attitude.

An alternative mechanism that might give rise to the reverse effect – older supervisors having more positive views of older workers than younger supervisors – is to be found in the field of "relational demography" where the similarity-attraction paradigm is an important building block (Riordan and Shore, 1997). The greater the similarity between, e.g., a supervisor and his team, the more the supervisor is attracted to his team, a match that is associated with more positive attitudes and experiences. In an early contribution, Tsui and O'Reilly (1989) show that "increasing dissimilarity in superior-subordinate demographic characteristics is associated with lower effectiveness as perceived by superiors, less personal attraction on the part of superiors for subordinates." By focusing on the manager–employee dyad, Shore *et al.* (2003) show that employee satisfaction or commitment is higher when the manager and employee are similar in (chronological) age. In the present study, the similarity-attraction paradigm can predict that managers will tend to have more positive views of employees of their own age group compared to other age groups.

To explicitly test the possibility of an age effect, one needs a longitudinal setup, to see whether the age of a manager plays a role in changing his or her perception of older workers and to what extent. The reason for expecting different responses over the lifetime is because some managers may switch from an out-group (middle aged) to the in-group (older workers) and this transition over time is rarely studied in detail. In short, with respect to the importance of age, we formulate the following hypothesis:

- H1.* When managers approach in age the age group of "older workers," they are more likely to develop positive views about the productive skills of older workers (Age group hypothesis).

A second element in our study is whether contact between managers and older workers has an impact on their view of older workers. In line with the so-called contact theory, it is generally believed that contact between members of different groups can reduce intergroup hostility and discrimination (Brown *et al.*, 1986). For instance, frequent and positive contact of a manager with older workers may change existing stereotypes and lead to an upward adjustment of the assessment. The reverse applies to conditions in which the relationship with older workers deteriorates over time. The evidence on the influence of contact with older workers is mixed. According to a study among three organizations by Hassell and Perrewe (1995), personal contact does not have a positive effect on the beliefs of supervisors about older workers. On the other hand, in a study by Henkens (2005), a positive effect is noted: he found a positive correlation between contact frequency with older workers and the assessment of the productivity of older workers. The cross-sectional research design of both studies makes it hard to make any causal inferences. In this study, we present a more refined contact hypothesis which disentangles how contact between

managers and older workers is viewed by the managers. In our setup we test the following contact hypothesis:

- H2.* Managers who experience a deterioration in the quality of contact in supervising older workers across time are more likely to become more negative over time about older workers' productivity skills compared to employers who experience an improvement or no change in supervising older workers (Contact hypothesis).

## Data and methods

### *Data*

We used data collected by a survey designed to measure attitudes with respect to older workers among managers at two points in time. The fieldwork was carried out by the Longitudinal Internet Studies for the Social Sciences (LISS) of Tilburg University. LISS is an internet panel that consists of approximately 6,500 individuals. All individuals in this panel were selected on the basis of a true probability sample of households drawn from the population register by Statistics Netherlands. For the current study, we used a small sample of managers ( $n = 326$ ) between the ages of 30 and 65 (average age being 46 years). The data were collected in April 2010 and in April 2013. The response rate for the 2010 survey was 71 percent and for the one carried out in 2013 is 84 percent. Managers in the LISS panel were identified based on their answers to the questions regarding whether they supervise others in their current occupation and whether they had any experience in hiring personnel in the past 10 years.

### *Dependent variables*

Our measures of stereotypes toward older workers builds on an extensive international literature that describes attitudes toward older workers[2]. The measures in the present study contained ten items in which older workers were rated on issues that capture their labor productivity. In order to extract stereotypical views, the respondents were given a list of ten characteristics based on the literature presented above for older workers. Each manager was asked to assess to what extent a number of skills apply in general to employees of 50 years of age and older. The list of skills covered the following skills: flexibility, social skills, loyalty, creativity, management skills, reliability, willingness to train, physical stamina, stress resistance and the ability to work with new technologies. Managers were asked, "To what extent, in your view, do the following characteristics apply to workers aged 50 years and older?" with answer categories (1) hardly, (2) somewhat, (3) strongly and (4) very strongly. The cut-off age of 50 years in defining older workers was chosen because most government (subsidization) programs aimed at stimulating demand for older workers, as well as human resource policies within organizations, refer to older workers as being 50 years and older (cf. (OECD, 2006), p. 111). Besides, the age of 50 years is also an acceptable threshold age marker used in both the academic and applied literature to identify "older workers."

Because some types of skills were expected to be correlated, we will subsequently use a number of factors which summarize the information embodied in these skills. The skills of older workers were split up into so-called soft and hard skills based on earlier research (Van Dalen *et al.*, 2010). Hard skills are based on the following components: stress resistance, creativity, flexibility, stamina, new tech skills and willingness to train. Soft skills are based on the following components: reliability, loyalty, social skills and management skills. To see whether the current set of skills conforms to such a division into soft and hard skills, we carried out a confirmatory factor analysis for two periods of observation, and this analysis suggests that such a division proves to offer a better fit than viewing the productivity of older workers being based on one composite of underlying skills (see the Appendix for full details). The constructed Cronbach's  $\alpha$ s for the

scales referring to the hard skills of older workers are 0.72 (Wave 1) and 0.73 (Wave 2); and for the soft skills 0.81 (Wave 1) and 0.71 (Wave 2). These are well above the conventional levels mentioned in the literature (Peterson, 1994).

### *Independent variables*

Explaining the soft and hard skills over time as perceived by managers, we resorted to two types of independent variables.

*Manager characteristics.* These variables refer to the age, education, gender of the manager, experience as a manager and the perceived change in the quality of contact in supervising older workers. Age was included as a continuous variable in number of years, and a quadratic term was included to account for a non-linear effect in the relationship. The respondents' level of education was derived from the number of effective years of education. To account for possible gender differences in stereotyping older workers, sex was included in the analysis ("0" male, "1" female). There is conflicting evidence regarding the influence of gender differences with respect to sensitivity to age differences. While some studies (Snyder and Miene, 1994) report that women are more likely to stereotype older adults than men, most studies find no gender effects (Hummert *et al.*, 1997). To account for the experience of the manager in supervising workers, we have included a variable measuring the number of years of experience in a managerial position. Finally, the change in quality of contact between the manager and older workers was measured by asking manager at each wave whether they experienced problems in supervising older workers (50 years and older) in the past two years: (1) no, never; (2) yes, sometimes; (3) yes, often; and (4) not relevant, I did not supervise older workers. These answers for the two waves were used to derive changes in experiences with older workers with the following answer categories : (1) no change; (2) improvement; (3) deterioration; and (4) not relevant, because the manager in question had no experience of supervision of older workers in the past two years.

*Organization characteristics.* To provide the context of the organizational setting, we included the following variables: the percentage of higher educated, based on the question, what percentage of the staff in your organization is higher educated (higher vocational training or university)? Answer categories ten intervals of 10 percent indicated this percentage; the percentage of older workers was based on the question, what percentage of the staff in your organization is 50 years or older? Answer categories ten intervals of 10 percent indicated this percentage. To check for non-linear effects, we included a quadratic term. We decided to include these effects because managers working in organizations that are very unbalanced with respect to the employment of older workers (either having hardly any older workers or have an overconcentration of older workers) may have strongly diverging experiences and hence have different attitudes toward older workers.

A conventional question to include in studies of older workers is the physically demanding nature of the work, which was addressed via the question, to what extent is the work of your employees physically demanding? Answer categories were as follows: (1) not at all; (2) to a weak extent; (3) to some extent; (4) to a large extent; (5) to a very large extent. We also included the sector of industry (industry, services sector, public sector and a residual category where the sector was not mentioned), which also approximates to some extent the physically demanding nature of the work. Finally, to control for the size of the organization, we also included a variable measuring the number of employees of the organization.

In Table I, we list the descriptive statistics of variables used in the statistical analysis.

### *Analyses*

We explained changes in skills of older workers as perceived by managers over time by the use of a conditional change score model (Berrington *et al.*, 2006). The absolute change in the

	Mean	SD	Stereotypes about older workers
Hard skills 50+ (4-point scale) Wave 1	2.06	0.47	
Hard skills 50+ (4-point scale) Wave 2	2.08	0.44	
Soft skills 50+ (4-point scale) Wave 1	2.66	0.56	
Soft skills 50+ (4-point scale) Wave 2	2.85	0.47	
<i>Manager characteristics</i>			
Age at Wave 1 (in years) <sup>a</sup>	47.02	8.69	
Gender (Male = 0, Female = 1)	0.29	0.46	
Education level (effective years)	13.58	2.90	
Experience supervision (years)	10.89	8.81	
Change in quality of interaction with older workers past two years			
Same (0–1)	0.54	0.49	
Improved (0–1)	0.07	0.26	
Deteriorated (0–1)	0.17	0.37	
Not relevant, no older workers supervised (0–1)	0.22	0.41	
<i>Organization characteristics</i>			
Composition personnel			
% highly educated (10 <sup>−2</sup> )	0.35	0.30	
% older workers ( > 50 years ) (10 <sup>−2</sup> )	0.23	0.17	
Type of work (5-point scale)			
Physically demanding	2.31	1.15	
Sector			
Industry	0.30	0.46	
Services	0.27	0.44	
Public sector	0.30	0.46	
Not known	0.13	0.34	
Personnel size organization (logarithm)	3.92	1.95	
<b>Notes:</b> <i>n</i> = 326. <sup>a</sup> Only managers in the age interval of 30–65 years of age were included in the sample used in this study			<b>Table I.</b> Descriptive statistics

dependent variable  $y_{it}$  (i.e. the change in soft and hard skills) between Wave 2 and Wave 1 is explained as follows:

$$\Delta y_{it} = \beta y_{it-1} + \alpha_0 + \gamma x_i + \epsilon_i, \quad (1)$$

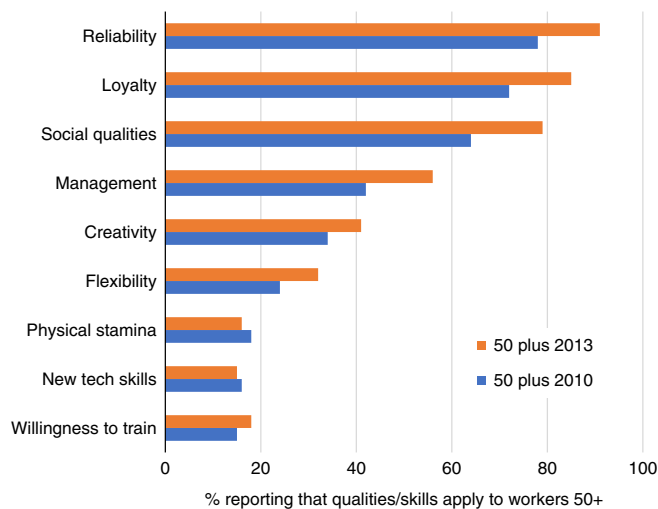
where the explanatory variables are the lagged dependent variable  $y_{it-1}$ , a constant and a set of explanatory variables  $x_i$  and an error term  $\epsilon_i$ . The lagged dependent variable  $y_{it-1}$  is included as a predictor in the model explaining absolute change. The initial state of the dependent variable is often found to be negatively correlated with change, displaying the so-called “regression to the mean” effect (Finkel, 1995). The benefit of using a conditional change model is that we are able to control for “regression to the mean.” We tested for non-linearity in the relationship between age and the assessment of changes in views about older workers by including an age-squared term. The latter term offered the opportunity to see whether an age-related change effect follows the inverted U-shape as commonly observed in the literature that studies age-productivity profiles (Skirbekk, 2004).

## Results

The assessment by managers of the skills of older workers of 50 years and older for both times of observation (2010 and 2013) is depicted in Figure 1.

Two observations can be made with respect to the assessment of the skills of older workers as displayed in the figure. First, according to managers the comparative advantage of older workers are the soft skills, whereas hard skills are mentioned more sparingly.





**Figure 1.**  
Assessment of skills  
of older workers by  
managers at two  
moments in time

**Note:** Percent (very much) agrees that presented skills apply to workers of 50 years and older

Soft skills like reliability and loyalty belong to the domain of older workers, whereas the hard skills offer a mixed outcome, although one can see that they have become more positive over time about the creativity and flexibility of older workers. Managers generally do not perceive trainability, new tech skills and physical stamina to be skills of older workers. A more formal test to detect statistical differences between the two periods in time is carried out in Table II and there one can see that the assessment of managers of older workers improves for six out of ten skills. In particular, the soft skills show a marked improvement as perceived by the managers.

#### *Explaining changes in soft and hard skills*

But what are the driving forces behind those changes? The regression analyses (Equation (1)) to explain changes in the perception of skills of older workers are presented in Table III. In Column (1) of this table, the results are presented for managers' assessments of the

**Table II.**  
Changes in the  
assessment of  
individual skills  
between 2010 and  
2013 by managers  
of older workers  
(50 years and older)

Skills	Item values at		Significant difference $t_2 - t_1$
	$t_1$	$t_2$	
Flexibility	2.11	2.18	0.07
Social skills	2.63	2.83	0.20***
Loyalty	2.76	3.00	0.24***
Creativity	2.23	2.33	0.10**
Management	2.29	2.49	0.20***
Reliability	2.89	3.08	0.19***
Willingness to train	1.89	1.92	0.03
Physical stamina	2.02	1.97	-0.05
New tech skills	1.94	1.92	-0.02

**Notes:** The values on four-point scale were 1 = not or weakly applicable; 2 = somewhat applicable; 3 = to a strong extent applicable; 4 = to a very strong extent applicable. The items (four-point scale) were tested for significant differences across the two waves with \* $p < 0.1$ ; \*\* $p < 0.05$ ; \*\*\* $p < 0.01$

	Change in hard skills (1)		Change in soft skills (2)	
	Coefficient	t-value	Coefficient	t-value
Hard skills $t-1$	-0.73***	14.89	—	—
Soft skills $t-1$	—	—	-0.85***	18.78
<i>Manager characteristics</i>				
Gender (Male = 0)	0.04	0.79	0.01	0.20
Age (years)	0.09***	3.10	0.08**	2.33
Age <sup>2</sup> ( $\times 10^{-2}$ )	-0.09***	2.73	-0.07**	2.05
Education(years)	-0.02*	1.71	0.01	0.98
Experience in supervision	-0.00	0.26	0.00	1.05
Change in quality of interaction with older workers (no change = 0)				
Improved	-0.08	0.93	-0.01	0.10
Deteriorated	-0.16**	2.43	-0.16**	2.22
Did not supervise older workers	-0.04	0.73	0.07	1.08
<i>Organization characteristics</i>				
Composition personnel				
% Highly educated	0.21**	2.29	0.19**	1.95
% Older workers	-0.20	0.49	-0.87**	1.96
% Older workers <sup>2</sup>	0.38	0.64	1.30**	1.97
Type of work (5-point scale)				
Physically demanding	-0.00	0.19	-0.03	1.07
Sector (industry = 0)				
Service sector	0.03	0.43	-0.01	0.13
Public sector	0.03	0.44	0.03	0.49
Not known	0.02	0.31	0.04	0.46
Size organization (logarithm)	0.00	0.16	0.01	0.39
Constant	-0.71	1.00	0.39	0.50
<i>n</i>		326		326
Adj. $R^2$		0.43		0.54

**Table III.**  
Explaining changes in  
attitudes of managers  
toward older workers  
(50 years and older)

**Notes:** \* $p < 0.10$ ; \*\* $p < 0.05$ ; \*\*\* $p < 0.01$

so-called hard skills of older workers. In Column (2) the results are presented for soft skills of older workers.

A number of conclusions can be drawn from the estimation results. First, in all equations there seems to be a substantial level of stability over time. Managers' assessments of the skills of older workers in 2010 is a strong predictor of their assessment three years later. This is also the primary reason why the explanatory power as measured by the adjusted  $R^2$  of the two models is relatively high. Second, in all equations, the age of the manager is a significant predictor of attitude change toward older workers. The significance of both the linear age effect and the age-squared effect implies that the effect of age has an inverted U-shape across age. The highest positive impact on changes in ratings of older workers' qualifications is found around the managers' age of 55: the positive change in assessment of the skills of older workers is highest for managers aged 53 (hard skills) and 54 (soft skills). This clearly suggests that the in-group hypothesis is confirmed: as managers become older and become part of the age (in-)group of 50 years and older, the more positive their assessment of the productive skills of older workers. However, because the effect has an inverted U-shape, it does not imply that the older the manager, the better the assessment. The assessment of managers nearing their retirement age is still positive but it slowly declines.

Figure 2 illustrates the estimated U-curve for the managers between the age of 30 and 65 years old in their assessment of soft and hard skills of 50-plus older workers, respectively.



**Figure 2.** Simulated impact of the age of the manager on changes in assessment of the hard and soft skills of older workers (50+)

**Note:** Simulated curves are based on estimated coefficients in Table III

The upper line shows that the older the manager is, the more likely that a positive change in assessments of the soft skills of older workers will be observed[3].

Besides the age effect of the manager making the assessment, another important point to consider is whether the manager has experienced a change in the quality of interaction with older workers over time. The estimated effect of this contact variable is asymmetric: an improvement in contact with older workers does not generate a positive effect, whereas deterioration of the quality of contact does. This suggests some kind of ratchet effect: it is very hard to redress a negative experience once it occurs.

Finally, the inclusion of firm contextual variables shows that the skill level of the organization has an impact on the assessment of hard and soft skills: the view of managers working in a higher educated organization is associated with a more positive change in the assessment of the productive skills of older workers. A possible reason for this may be that in such work environments the type of work does not lead to a strong depreciation by age as may be the case in lower skilled work environments. The age structure of the personnel or the level of physically demanding work does not have a significant effect on the changes in perceptions of older workers' hard skills. However, if we focus on the soft skills, where most of the changes in perception of skills are occurring (see Figure 1), the age structure does matter and has a U-shaped form. This implies that for both very young or very old age structures, the managers seem to be more positive toward older workers, but considering the fact that the minimum point is skewed toward the left – a 33 percent share of older workers – a very old organization structure will have a larger and positive effect on managers' perception than a very young organization. Finally, we controlled for the size of the organization, but this does not exert any significant effect on the changing the views of managers.

## Conclusions and discussion

The use of stereotypes and discrimination against individuals or groups on the basis of their age is perceived to be widespread (James *et al.*, 2013; Griffin *et al.*, 2016). Trying to change this state of affairs is not only in the interest of older workers seeking work or who are willing to keep on working, but may also very well be in the interest of organizations that "write off" too easily or too fast the human capital embodied in older workers. The scholarly

literature on the stereotypical managers' views on older workers shows a mix of positive and negative views (cf. Harris *et al.*, 2017). Older workers are perceived to have strong so-called "soft skills" like loyalty to the organization, reliability and interpersonal skills, but are generally negatively stereotyped on so-called "hard skills" such as the acceptance of and the ability to use new technologies and the adjustment to organizational changes and willingness to learn new skills or knowledge. The current paper contributes to the literature by providing a dynamic perspective on managerial stereotypes of older workers. We measured stereotypical views about older workers with a three-year interval among a sample of Dutch managers, and examined whether these views changed and what factors might explain the change. This type of research helps to expand the research base on ageism, because most research in this field – as noted by Harris *et al.* (2017, p. e12) – is based on cross-sectional data sets and lacks a longitudinal study design.

This study presents three findings. First, individual managers have become more positive about a number of skills of older workers (aged 50 years and older). However, this change has mainly been restricted to soft skills and not so much the hard skills, which are an important part of the demand of employers (Van Dalen *et al.*, 2010). Second, we find support for our "age group" hypothesis: older managers are more likely to become more positive about older workers than young managers. However, this relationship is non-linear: the biggest positive change in attitudes is witnessed among managers around the age of 50 years old. Once a manager becomes older and starts belonging to the older worker in-group, stereotypes are most likely to change. Third, we find empirical support for the second hypothesis (the "contact" hypothesis): managers who experience a deterioration in the quality of contact in supervising older workers across time are more likely to become more negative over time about older workers' productivity skills compared to employers who experience an improvement or no change in supervising older workers.

This study is not without limitations. First, in a two-wave three-year panel study we are not able to study whether the positive change in attitudes toward older workers is sustainable over a longer time span. Multi-wave studies covering longer timespans might provide a more detailed picture of changing stereotypes toward older workers among managers. Second, this study was carried out among managers. Earlier work suggests that these stereotypical views of managers show strong similarity with the views of employees themselves (Van Dalen *et al.*, 2010). Future research might want to look at changes in the attitudes of employees in organizations. Finally, it remains an open question to what extent one can generalize the current findings, and this study is no exception. The Netherlands is a forerunner in reforming the extensive pension and social security system to induce longer working lives. Reforms were carried out starting in 2012 that were set on gradually increasing the public pension age to the age of 67 in the year 2021. From 2022 onwards – although plans are in the making to slow the rate of increase and to shift the starting date to 2024 – this public pension age will be linked to the life expectancy of the average Dutch citizen at age 65 (see Van Dalen *et al.*, 2019). Under the current pension law and based on life expectancy projections, the public pension age will show a steep increase in the coming decades. For example, today's young workers will face a public pension age of approximately 72 years. As a consequence of this pension reform employers will face a higher level of work staff ageing compared to countries that are not hard pressed to reform and to extend the working careers. Future research may show whether the conclusions reached in this paper hold in other countries with different age structures and welfare states.

Reducing age discrimination in the workplace is at the forefront of policy debates in most countries dealing with an ageing workforce (Axelrad and James, 2016). Over the past decades, a large number of initiatives have been launched to combat age stereotypes, in particular among employers. Age stereotypes with respect to older workers play an important role in sustaining these discriminatory practices, perhaps leading observers to assume that stereotypes are hardwired. Registering changes in age stereotypes among

managers in a longitudinal study, as in the current study, is important because it sheds light on how hardwired stereotypes are in real life. Empirical evidence of notable changes in these stereotypes is largely absent in the international scientific literature. Although there seems to be a high level of stability in our study, we also show that changes can occur within a relatively short time span. In some respects, this is hopeful news for aging societies that become more and more reliant on older workers. However, a critical observer might remark that jobs generally entail both soft and hard skills and that the main increase observed in our study is that over time, employers became more positive regarding the comparative advantage of older workers' soft skills, whereas their perceptions of the hard skills did not change at all. Certainly when current and future employees have to extend their careers by a substantial number of years – as is the case in the Netherlands – improving those perceptions of older workers' hard skills may well be the key to a sustainable integration of older adults in the workforce.

### Notes

1. Besides these main views on discrimination one can also find contributions by Lang (1986) who offers a language theory of discrimination, and Spence (1974), who discusses a signaling theory of discrimination, where the relationship between education and ability is perceived to be different for different groups.
2. These studies used a set of attitudinal Likert-type questions that has been developed by Taylor and Walker (1993), and has been extensively used in the UK (Loretto *et al.*, 2000; Lyon and Pollard, 1997; Taylor and Walker, 1998), the USA (Wagner and Bonham, 1998), New Zealand (Gray and McGregor, 2003), Hong Kong (Chiu *et al.*, 2001), Australia (Schmidt, 2000) and the Netherlands (Henkens, 2005).
3. We also tested for a possible interaction effect between age and gender, as men and women are sometimes shown to have different ageist attitudes (Duncan and Loretto, 2004, pp. 107-109). However, the results of a model that includes such an interaction do not suggest that gender-specific attitudes in our setup are important.

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### Appendix. Confirmatory factor analysis

A two-factor model was tested by loading items on their respective latent variables at the two moments measured: Waves 1 and 2. Results showed that items all significantly loaded on their respective latent factors (standardized factor loadings ranged from 0.67 to 1.30 (soft skills) and 0.96 to 1.31 (hard skills) and were all statistically significant). Information criteria of the two-factor model were obtained:

- for Wave 1: Akaike (AIC) = 5,848.1, and Bayesian (BIC) = 5,956.6 with RMSE = 0.08; CFI = 0.93; and
- for Wave 2: Akaike (AIC) = 5,582.7, and Bayesian (BIC) = 5,691.5 with RMSE = 0.11; CFI = 0.86.

An alternative one-factor model was specified by loading all ten items on the same latent factor:

- for Wave 1: Akaike (AIC) = 5,994.3, and Bayesian (BIC) = 6,098.9 with RMSE = 0.15; CFI = 0.78; and
- for Wave 2: Akaike (AIC) = 5,672.2, and Bayesian (BIC) = 5,777.1 with RMSE = 0.15; CFI = 0.75.



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We also tested the  $\chi^2$  differences between the models. Also here the two-factor model fitted substantially better  $\chi^2$  difference ( $df = 1$ ) = 147.7 for Wave 1 and  $\chi^2$  difference ( $df = 1$ ) = 88.5 for Wave 2. Since all of information criteria of the two-factor model were better than those of the one-factor model, the two-factor model offered a better model fit and thus was accepted for further analysis.

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